MS
Lamar, J.E.
#139

SUBSURFACE LIMESTONE RESOURCES OF WOODFORD COUNTY

Abstract

The Silurian Dolomite is the shallowest rock unit in Woodford County that appears to be of such character and thickness as to be a possible source of useful commercial stone. Some of it probably is reefrock. The shallowest Silurian occurs in the northwest part of the county where it probably is about 650 feet deep beneath the alluvium of the Illinois River bottomlands. It is deepest in the southeast part of the county where it is found around 1100 feet. The Silurian is overlain by Devonian, Mississippian and Pennsylvanian strata which are capped by glacial deposits roughly 50 to 350 feet thick. Much water bearing sand and gravel is present in the west third of the county, and it occurs likewise in places in the remainder of the county. Shaft sinking for subsurface mining would have to contend with this situation.

Woodford County

There are 25 wells in Woodford County that penetrate the Pennsylvanian strata and the majority of them are in the western half of the County. Most of the wells are "structure tests" and give only formation "tops". The majority of the wells reach the Devonian but only 3 certainly enter the Silurian. Four sample sets have been studied but only two of them give detail.

From the standpoint of potentially commercially usable stone, the Burlington-Keokuk appears to be of unlikely importance because it is believed to be mostly cherty dolomite or cherty limestone and dolomite. This statement

is based on the two wells from which samples were described in detail as mentioned above. The Devonian "Limestone" is principally dolomite in the same two wells and is silty, sandy, cherty or argillaceous and, therefore, does not seem likely to be of interest. In 3 wells which penetrated it, the average thickness of the Devonian Limestone was 56 feet.

The Silurian seems to afford the best potential for stone of possible commercial usefulness. As noted above, only 3 wells certainly penetrate it, and it is described from samples in only two wells, both in the southeast part of the County, in section 18, T. 25 N., R. 1 E. and section 31, T. 26 N., R. 1 E. The character of the Silurian in the two wells is shown graphically in Figure 2. Apparently considerable thicknesses of possibly usable stone are present probably including reefrock. Howard, (Circular 377, page 8), describes the Silurian in the well in section 31 as "Silurian fully penetrated, reef dolomite."

The depth to the Silurian is shown in Figure 1. As the top of the Silurian is rarely reached in Woodford County wells, the depth to it had to be estimated in most wells. The interval between the top of the Kinderhook, a commonly reported horizon, and the top of the Silurian in the three wells which reach the Silurian (a, b, and i) is 244, 252, and 242 feet respectively. The average of the three is 245 feet and this value was used in estimating the depth to the top of the Silurian from data on the top of the Kinderhook, Table 3.

To test the probable general applicability of the foregoing, the average thickness of the Kinderhook (185 feet, Table 2) was added to the average thickness of the Devonian Limestone (56 feet, Table 2) giving a total of 241 feet, which was considered a good check.

Figure 1 shows that the depth to the Silurian varies from about 1100 feet in the southeast part of the County to a possible minimum of 834 feet in the northwestern part of the County. At Minonk a somewhat uncertain depth of 765 feet is estimated for the top of the Silurian, although a rising of the Silurian to the east in this area toward the LaSalle anticlinal belt may be responsible for the comparative shallowness.

No records are availalbe in the bottomlands of Illinois River in the western part of Woodford County, but as the bottomlands are about 200 feet lower than the uplands, the Silurian might be expected at around 650 feet beneath them.

In addition to the Devonian and Mississippian rocks that overlie the Silurian, Pennsylvanian sediments, mostly sandstone and shale, overlie the Mississippian beds are are in turn overlain by glacial drift, including till and much sand or gravel in places.

The depth to bedrock in 35 wells reaching bedrock throughout the County varies from 52 to 353 feet. Only a few wells reach bedrock at depths of less than 100 feet, depths of 100 to 200 feet are common and 9 of the wells went more than 300 feet to bedrock. The Sankoty sand occurs at the base of the drift in roughly the west one third of the County and contains good to excellent aquifers as does the fill beneath the bottomlands of Illinois River (Circular 248, pages 12 and 34). Throughout the rest of the County chances for aquifers are fair to good. Shaft sinking through the Pleistocene deposits should be prepared, therefore, to encounter water, especially in the western third of the County.

Water conditions in the bedrock formations are not known.

J. E. Lamar
December 1964

Woodford Co.

Table 2.

Well ref. letter	Thickness, feet				Remarks
	Burl-K.	Kinderhk.	Dev. ls.	Sil.	
a	111	197	47	401	
b	63	184	68	405	
c		190			
d	90	190			
e	70	185			
f		191			
g		181			
h	58	181			
i	41	189	53		
j	105	187			
k	99	190			
l	94	189			
m	38	166?			
n	52	176			
o	24	177			
p	32	196			
q	35	179?			
r	82	199	93?		
s		201			
t	No Miss. rptd.				
u		174			
v		167			
w	10'+				
x	None reported	150			
y	34'+	188			

3882 avg 185'

Remarks: Average Kinderhook not including questioned values - 185 ft.
" Devonian ls. " " - 56 ft.

Table 3. Woodford Co.

Well ref. letter	Depth to Sil.	Depth to Sil (Est *)
a	1102	1103
b	1047	1036
c		1032
d		967
e		997
f		991
g		962
h		999
i	1005	1008
j		1032
		1029
l		1044
m		1027
n		977
o		1013
p		1005
q		895
r	980?	933
s		861
t		765? ← Calculated from top of Galena using 585' factor
u		947
v		878
		854? ← Calculated from top Dev. no Kind. rptd
x		961
y		834? ← (Calculated from top Dev. no Kind. rptd)

* Based on an interval of 245' from the top of the Kinderhook to the top of the Silurian

Δ top n Dev in
f + W. ackty top
Sil

Kinderhook ~~Sweetland~~ includes New Albany Ck so on Dev. is top n Cedar valley or Wapsip

a. Burl 747-858, Kind-858-1055, Dev 1055-1102, Sil 1102-1503

b. Burl 728-791, Kind 791-975, Dev 975-1043, Sil 1043-1448

c. Kind 787-977

d. Burl 632-722, Kind 722-917

e Burl 682-752, Kind 752-937

f. Kind 746-939

g. Kind 717-898

h. Burl 696-754, Kind 754-935

i Burl 722-63, Kind 763-952, Dev 952-1005

j Burl 682-787, Kind 787-974

k. Burl 685-784, Kind 784-974

l Burl 705-799 Kind 799-988

m Burl 744-782 Kind 782-948 (?)

n Burl 680-732, Kind 732-908

o Burl 744-68, Kind 768-945

p. Burl 728-60 Kind 760-956

q. Burl 615-50, Kind 650-829?

r Burl 606-688, Kind 688-887, Dev 887-980?

s Burl-not rptd Kind 616-817

t No Miss rptd

u Kind 702-876

v - Knid 633-800

w - So Burl fs-. Clearly evident are 10' @ 611. bu th s 27' v "sh, lime cht" fl n we ma t Burl, Knid 682-798

x - Knid 716-866. No Burl mnyd

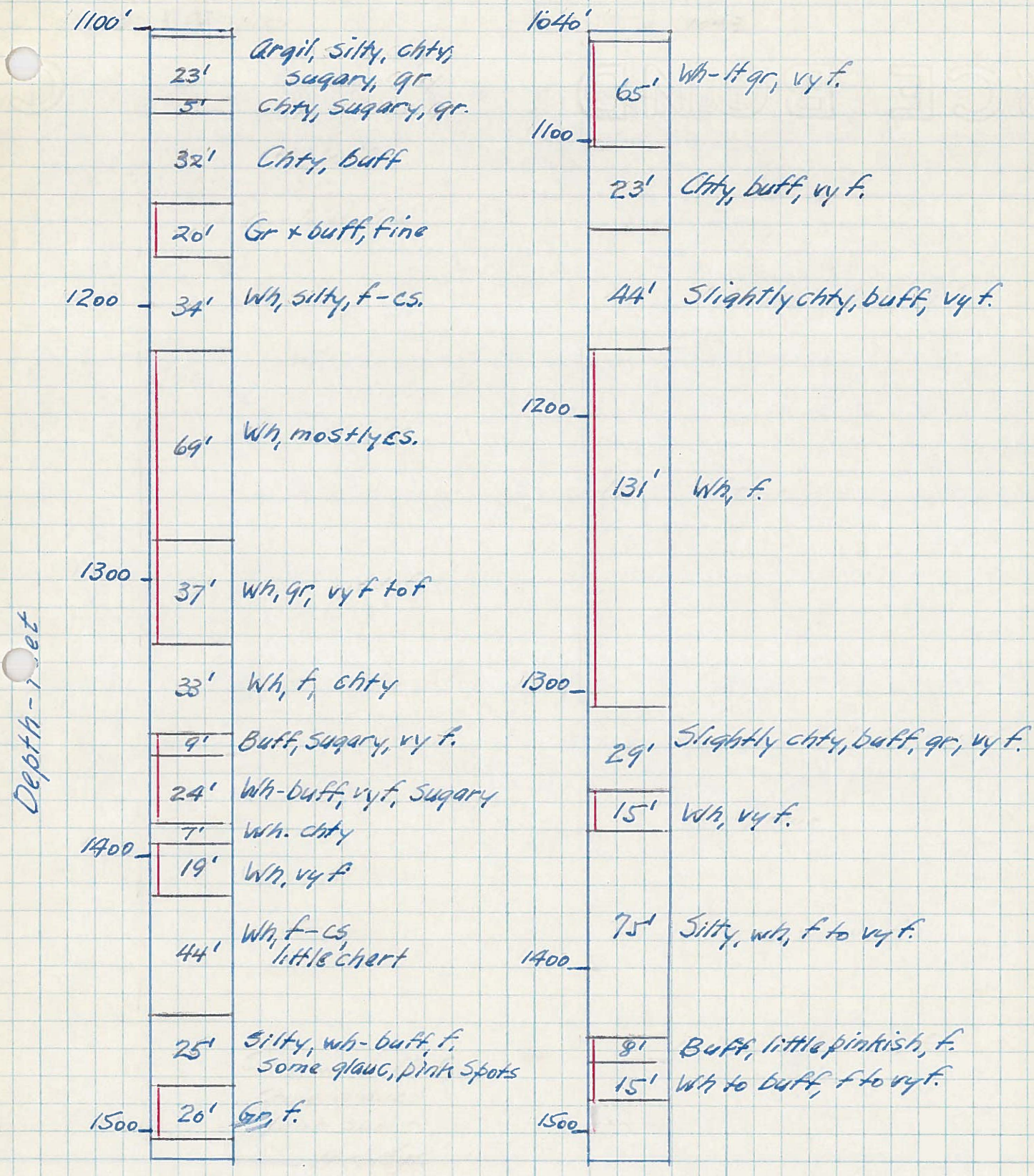
y - Burl 556-590 (not tml as Vlyg unit s decbs a "sh + lime"; Knid 590-778

Dyn to Link

245	159
200	181
332	320
326	153
331	306
335	341
128	177
130	85
195	125
242	140
151	90
52	160
145	
322	
120	
190	
180	
353	
218	
170	
181	
149	
230	

50 – 99 III	3
100 – 149 IIII III	8
150 – 199 IIII IIII	10
200 – 249 IIII	5
250 – 299	0
300 – 349 IIII III	8
+ 350 1	1
	35

Fig. 2. Sample studies of the Silurian, Woodford Co.



J.E. Rocke #1,
SW, SW, NE, Sec. 18,
T25N, R1E.

Moreland #1
NW, NW, SE Sec. 31
T26N, R1E.

Woodford Co

Table 1

Depth to

Well ref. letter	T	R	Sec.	¼	¼	¼	El.	Burl.	Burl.–Keok.	Kinder.–Hook	Kinder.–New Albany	Dev.	Sylamore sdstn.	Dev. "15."	Dev. Vs. Cedar Vy	Dev. & Sil.	Sil.	Maquoketa (Kimmswick-Plat.)	Samples Studied
a 1	25N	1E	18	SW	SW	NE		747		858				1055			1102	1687	yes
b 2	26N	1E	31	NW	NW	SE	740	718		791				975			1043	1635	yes
c 3	26N	1W	27	SE	SE	NE	734				787	977							No samps
d 4	"	"	30	NW	NE	NE	683		637		722	917							" "
e 5	26N	2W	10	SW	SW	SW	756		687		752	937							No
f 6	"	"	13	NW	NW	NW	729				746	936							No samps
g 7	"	"	13	SE	SE	SE	692				717	898							" "
h 9	"	"	14	SE	SE	SE	744		696	754		935							No samps
i 10	"	"	15	NE	NE	NE	758		722	763		952					1005		No
j 11	"	"	22	SE	SE	SE	750		683	787		974							No samps
k 12	"	"	22	NE	NE	NE	755		685	784		974							" "
l 13	"	"	25	NW	NW	NW	752		705	799		988							" "
m 15	27N	2W	1	NW	NW	SW	822		744	782									yes
n 16	"	"	4	SE	SE	SE	765		680		732	908							No samps
o 17	"	"	11	SE	SE	NE	788		744		768	945							" "
p 18	"	"	29	NW	NW	NW	769		728		760		954		956				" "
q 20	27N	3W	1	NW	NE	NE	711		615		650	849.?							No samps
r 21	"	"	28	SE	SW	SE	778		606		688		881		887		980?		No
s 22	"	"	30	SE	SE	NW	722				616		812	817					No samps
t 24	28N	2E	7	S½	NE	SW	758									655		1350	yes
u 25	28N	1W	30	NE	NE	SE	761				702	876							No samps
v 26	28N	2W	15	SE	NE	SE	724				633	800							" "
w 27	28N	2W	26	NW	NW	NE	713							798.?					No
x 28	"	"	34	NE	NE	NE	775				716	886							No samps
y 30	28N	3W	36	SW	NE	NW	663		556.?					778.?					No

4813 – Buff
8813 – Green

Depth to Silurian. An underlined figure is an actual depth; figures not underlined are estimated. The small letters by the well locations correspond to those in Tables 1, 2 & 3.

11/64